SUNFORCE®

600 Watt MARINE WIND TURBINE

User's Manual

Congratulations on your Sunforce Purchase. This product is designed to the highest technical specifications and standards. It will supply years of maintenance free use. Please read these instructions thoroughly prior to installation, then store in a safe place for future reference. If at any time you are unclear about this product, or require further assistance please do not hesitate to contact our trained professionals operating the customer support line 1-888-478-6435 or email to info@sunforceproducts.com

The Sunforce 600 Watt Marine Wind Turbine is designed for watercrafts and any area in close proximity to salt water. The heavy-duty powder-coating adds enhanced resistance to the effects of the sun, wind, and water. All components have been tested to perform, without degradation under marine conditions.

1. SAFETY

Your Sunforce 600 Watt Wind Turbine is designed with your personal safety as the first priority. However, there are still some inherent dangers involved with any electrical and/or mechanical equipment.

Safety must be the primary concern as you plan the location, installation and operation of the turbine. Please read the following:

Important Safety Instructions

Please take the time to read through this manual prior to assembly.

1) Place this instruction manual in a safe place for reference.
2) Wait until a calm day to install or perform maintenance on your Turbine.
3) Listen to your Turbine should you hear any mechanical noise, maintenance may be required, please contact Sunforce Products Customer Service.
4) After installation re-adjust and tighten the screws and bolts.
5) Adhere to proper grounding techniques as established by the NEC.
6) Your Sunforce Wind Turbine must be installed in accordance with this manual and local and national building code. Incorrect installation may void your warranty.
7) Wind turbine blades spin at a potentially dangerous speed this must be respected. Never approach a turbine in motion.
8) Note wire size (gauge chart included) prior to wiring. Any under sizing of wire can be potentially dangerous.

1.1 Mechanical Hazard

Rotating blades present the most serious mechanical hazard. The rotor blades are made of very strong thermoplastic. At the tip, the blades may be moving at velocities over 15m/s. At this speed, the

tip of a blade is nearly invisible and can cause serious injury. Under no circumstances should you install the turbine where a person could come in contact with moving rotor blades.

1.2 Electrical Hazard

The 600W Turbine is equipped with sophisticated electronics designed to provide protection from electrical dangers. Please note that the inherent personal dangers from electrical current still exist, therefore caution should always be used when connecting this and other electrical devices.

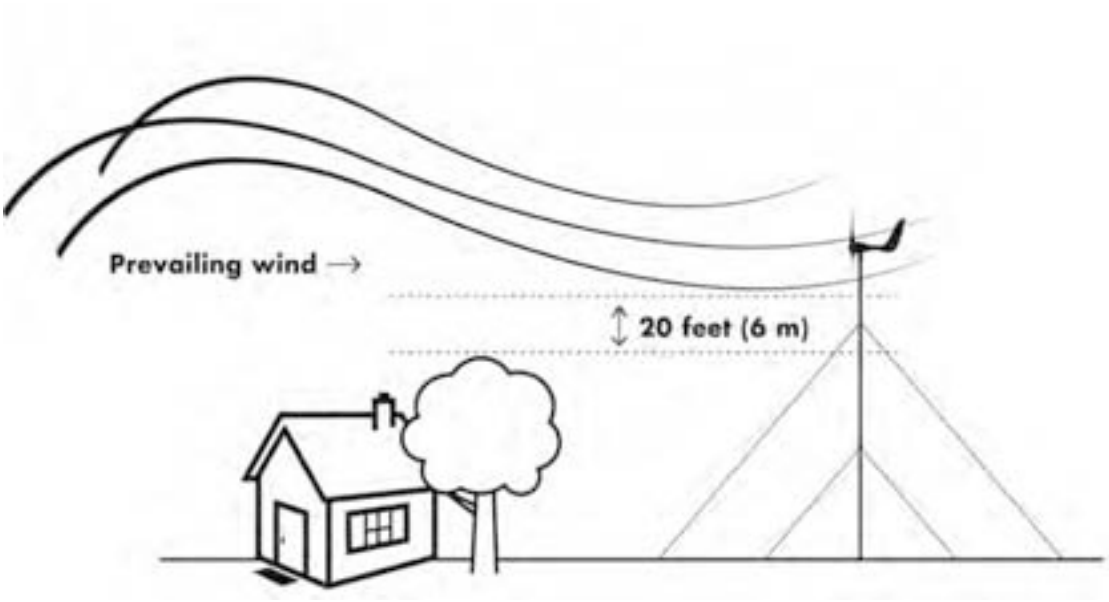
Heat in a wiring system is often a result of too much current flowing through an undersized wire or through a bad connection. Please consult wire guide table below.

Choosing your Sunforce 600 Watt Wind Turbine's location

Prior to the mounting of your Sunforce 600 Watt Wind Turbine, you must carefully consider a location. Things to consider when thinking about your location:

A) Distance from any obstacles that will cause turbulence, trees, buildings etc.
B) Distance from MPPT controller and battery bank
C) Any local zoning restrictions
D) Clearance of power lines
E) When mounting on a boat, be aware of moving objects that may obstruct the turbines blades.

In general terms the higher the tower the less obstruction to air flow, leading to a more efficient charge capacity. The minimum recommended tower height is 30 ft or 20 ft above nearby obstructions for land installations as shown below.



2. MODEL AND SPECIFICATION TABLE

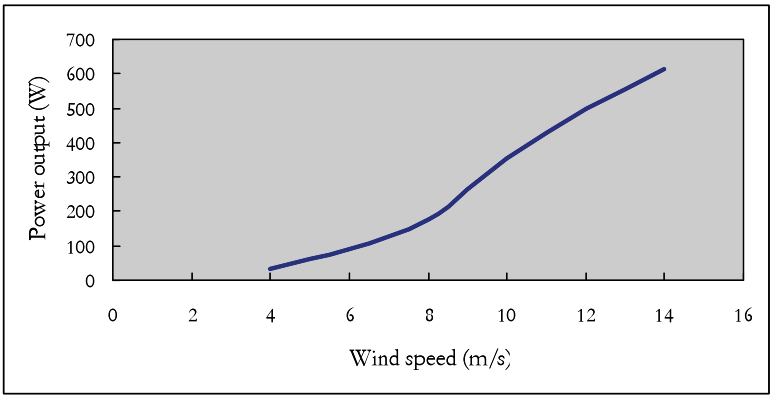
2.1 Specification Table

Model	600W Marine Turbine
Related speed	12.5 m/s (41 ft/s)
Related power	600 W **#**
Voltage with MPPT	12 or 24 V **##**
Rotor diameter	1.31 m (4.3 ft)
Cut-in wind speed	4.5 MPH
Survival wind speed	157 MPH
Number of Blades	3
Blade material	Fiber glass
Suggested battery capacity	>100 A/Hr

2.2 Performance specifications

The following power curve shows the performance you should expect from your wind turbine. During smooth, steady wind speed, you can expect to see output resembling the curve illustrated below. To convert between power and current use the following formula:

POWER = VOLTAGE × AMPS



3. Digital-controlled MPPT Wind Power Charger

Please see included Manual for your MPPT Charge Controller.

- ✓ MCU fully digital-controlled MPPT wind power charger.
- ✓ SEPIC conversion, large DC input voltage range.
- ✓ Smart load management function, braking function.

Rated Output Power :	600W Max.
Battery Voltage Range:	12V or 24V DC
Input Voltage Range	5~75 Vrms
Charger Efficiency:	>87%
Battery Protection Voltage:	12V - 14.4V(Lead-acid batteries) or 15.8V(deep-cycle Battery) 24V - 28.8V (Lead-acid batteries) or 30V (Deep-cycle batteries)
Rated Load Current:	35A Max.
Over-Speed Braking:	≦1400 rpm

Caution: Please review the following wire gauge table to install the correct wire gauge. Sunforce recommends these as the minimum wire sizes for optimal performance.
Always use the largest gauge wires that are practical and affordable. Local, state, and or national electrical codes take precedence over these general recommendations.

12 Volt Systems, AWG / Metric Wire Size mm²

Number of Turbines:	0-30 ft (0-9 m)	30 ft-60 ft (9-18 m)	60 ft-90 ft (18-27 m)	90 ft-150 ft (27-46 m)	150 ft-190 ft (46-58 m)	190 ft-250 ft (58-76 m)	250 ft-310 ft (76-95 m)	310 ft-390 ft (95-119 m)	390 ft-500 ft (119-152 m)
1	8/10 mm²	6/16 mm²	4/25 mm²	2/35 mm²	1/50 mm²	0/50 mm²	00/70 mm²	000/90 mm²	000/90 mm²
2	6/16 mm²	4/25 mm²	1/50 mm²	00/70 mm²	000/90 mm²	0000/120 mm²	***	***	***
3	4/25 mm²	2/35 mm²	0/50 mm²	000/90 mm²	0000/120 mm²	***	***	***	***

*** If your system requires this length of wire, consider using parallel wires.

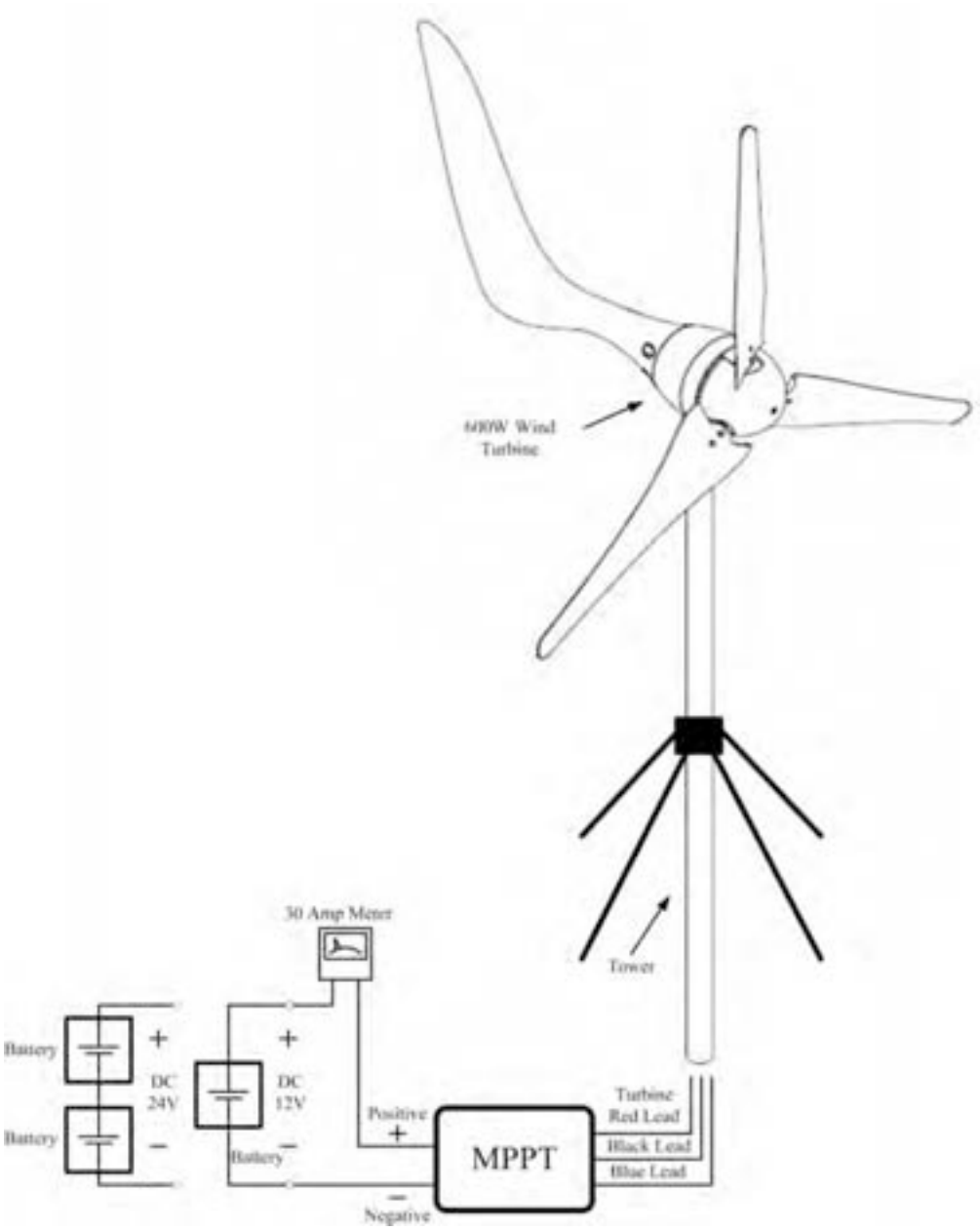
24 Volt Systems, AWG / Metric Wire Size mm²

Number of Turbines:	0-30 ft (0-9 m)	30 ft-60 ft (9-18 m)	60 ft-90 ft (18-27 m)	90 ft-150 ft (27-46 m)	150 ft-190 ft (46-58 m)	190 ft-250 ft (58-76 m)	250 ft-310 ft (76-95 m)	310 ft-390 ft (95-119 m)	390 ft-500 ft (119-152 m)
1	14/2.5 mm²	12/4 mm²	10/6 mm²	8/10 mm²	6/16 mm²	4/90 mm²	4/90 mm²	000/90 mm²	000/90 mm²
2	12/4 mm²	8/10 mm²	6/16 mm²	4/25 mm²	4/25 mm²	2/35 mm²	2/35 mm²	1/50 mm²	0/50 mm²
3	10/6 mm²	8/10 mm²	6/16 mm²	4/25 mm²	2/35 mm²	2/35 mm²	1/50 mm²	0/50 mm²	00/70 mm²

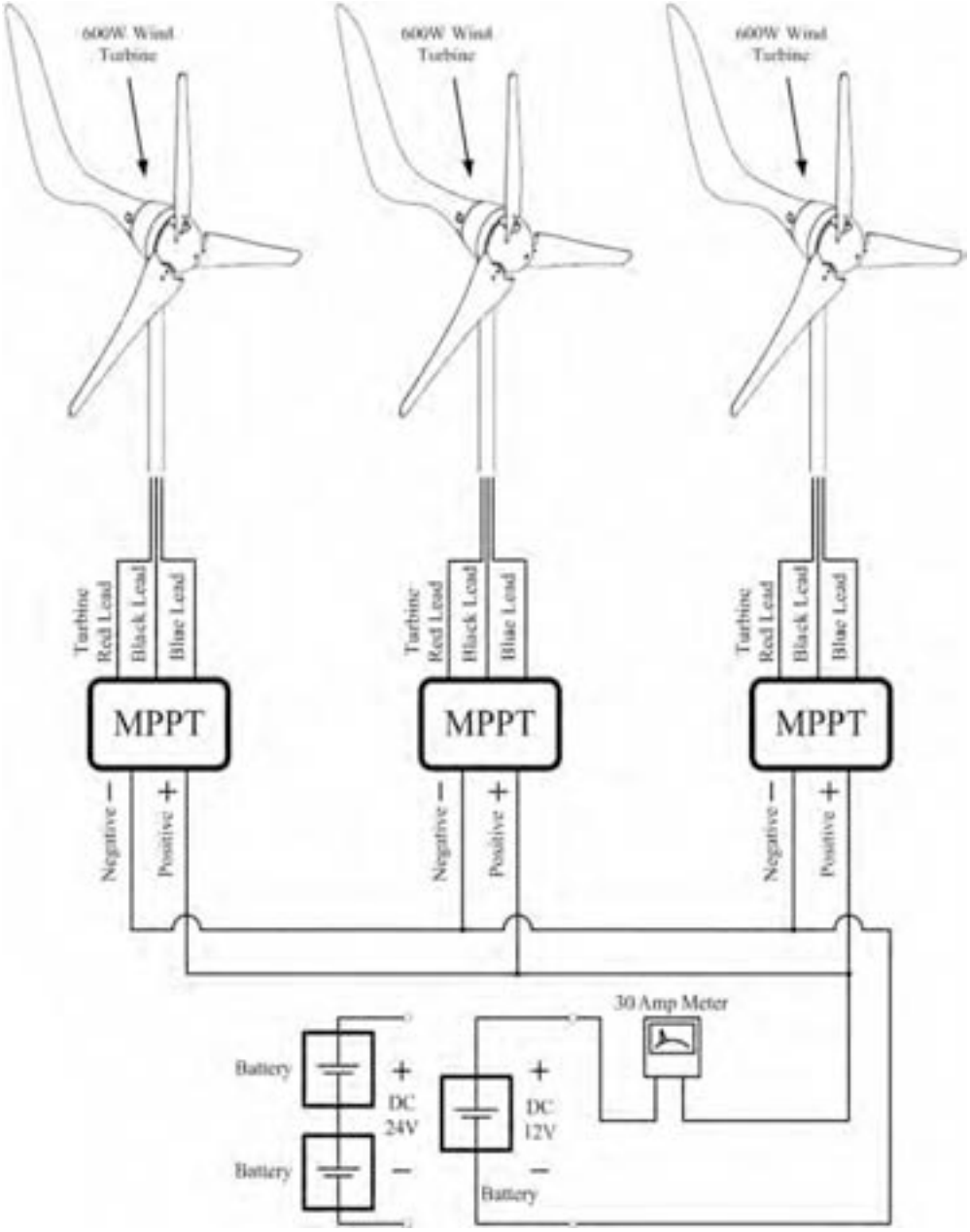
3.*1 System wiring diagrams*

There are multiple options to connect your Wind Turbine dependant on your power requirements and available components.

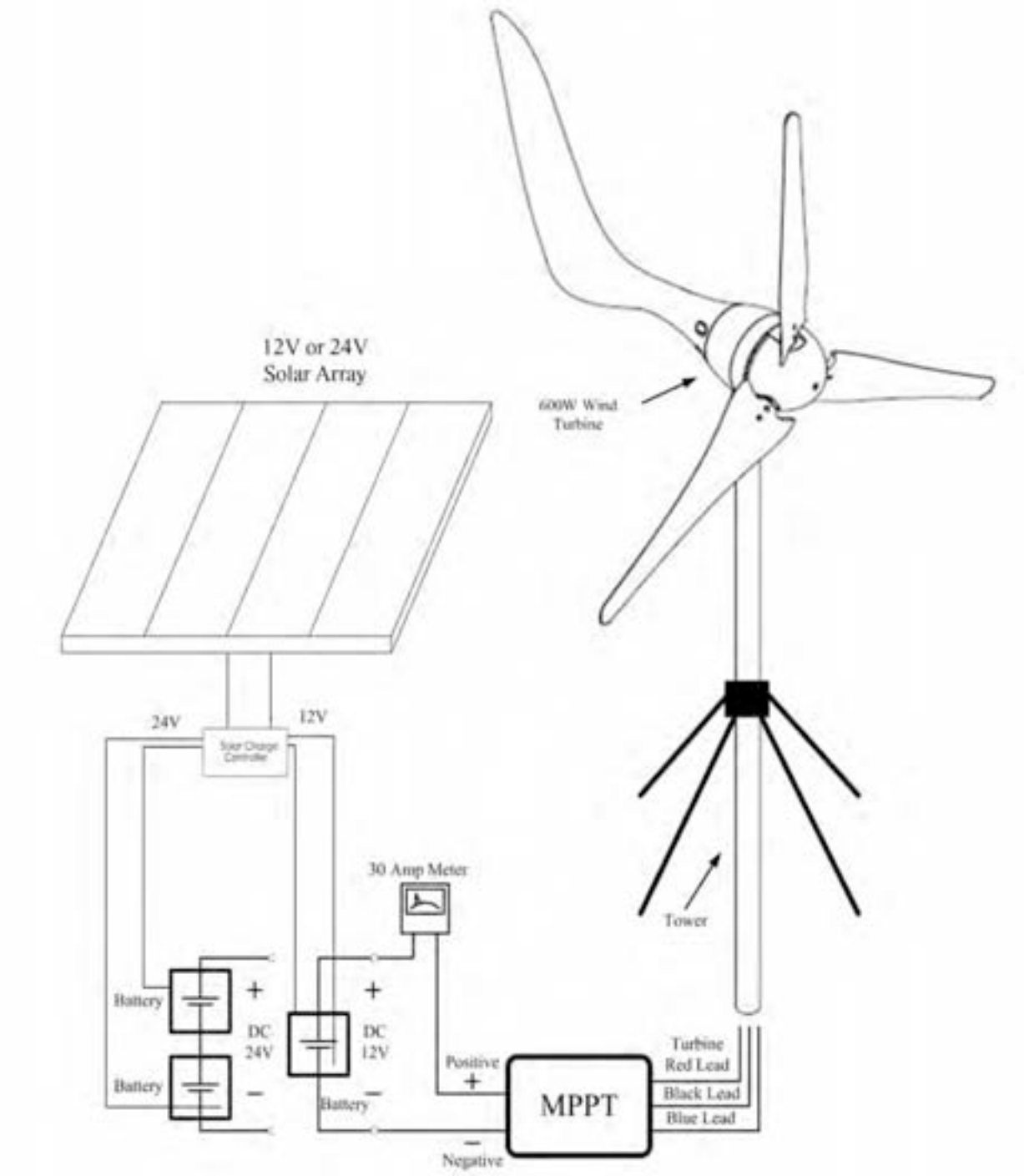
Single Turbine installation:



Multiple Turbine installation:



Hybrid Solar/Wind System

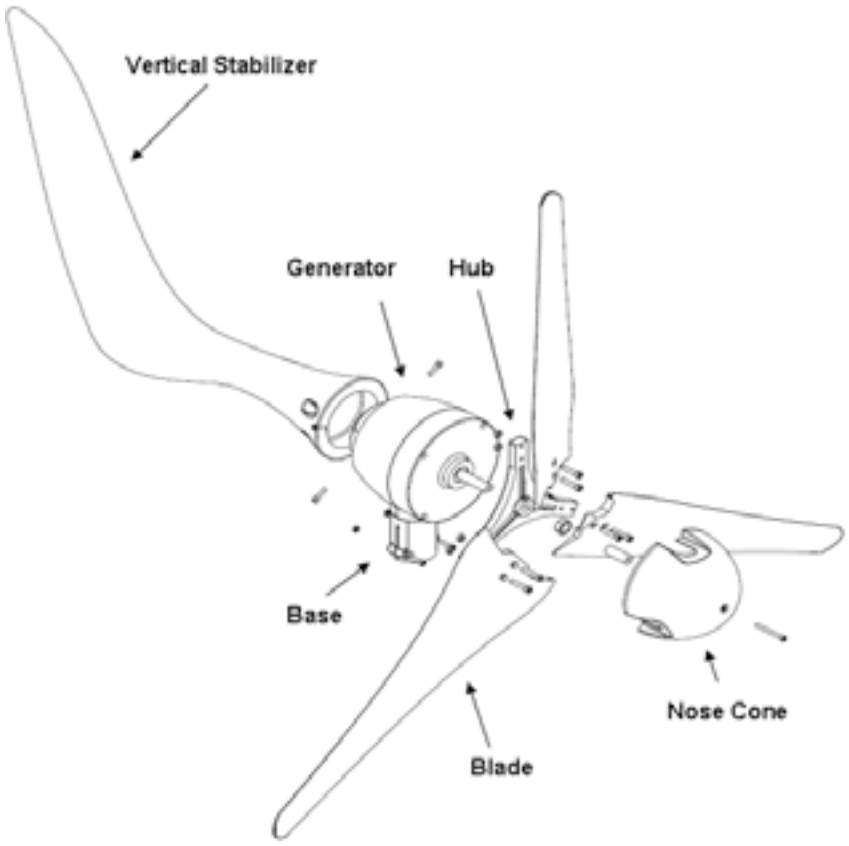


A typical “hybrid” system (Photovoltaic and Wind combined) is wired as follows
Whenever feasible wire the turbine and solar panels to their own set of battery terminals.

4. PACKAGE CONTENTS

Check the parts listed with the contents of the box and make sure that you have everything needed for assembly.

Figure 1



Caution: The edges of the blades are sharp. Please handle with care.

Name		Quantity
Turbine		1
Blades		3
MPPT Charge Controller		1
Hub		1
Vertical Tail		1
Nose Cone		1
Amp Meter		1
	Nut (M14xP2.0)	1
	Hex Screw(M6xL30)	6
	Nut (M6)	6
	Hex Screw (M5xL12)	1

Screw Pack	Spring Washer (M14)	1
	Stop Screw (M5xL20)	1
	Hex Sleeve	1
	Hex Key no.5	1
	Hex Key No.3	1
	Rubber Spacer	1
	Hex Screw (M5xL20)	4
	Washer (M5)	4
Replacement Screw Pack	Nut (M14xP2.0)	1
	Hex Screw (M6xL30)	6
	Nut (M6)	6
	Hex Screw (M5xL12)	1
	Spring Washer (M14)	1
	Rubber Spacer	1
	Hex Screw (M5xL20)	4
	Washer (M5)	4
	Stop Screw (M5xL20)	1

5. INSTALLATION PROCEDURE

Step1: Open box to ensure all parts are present, remove the hub from the box.

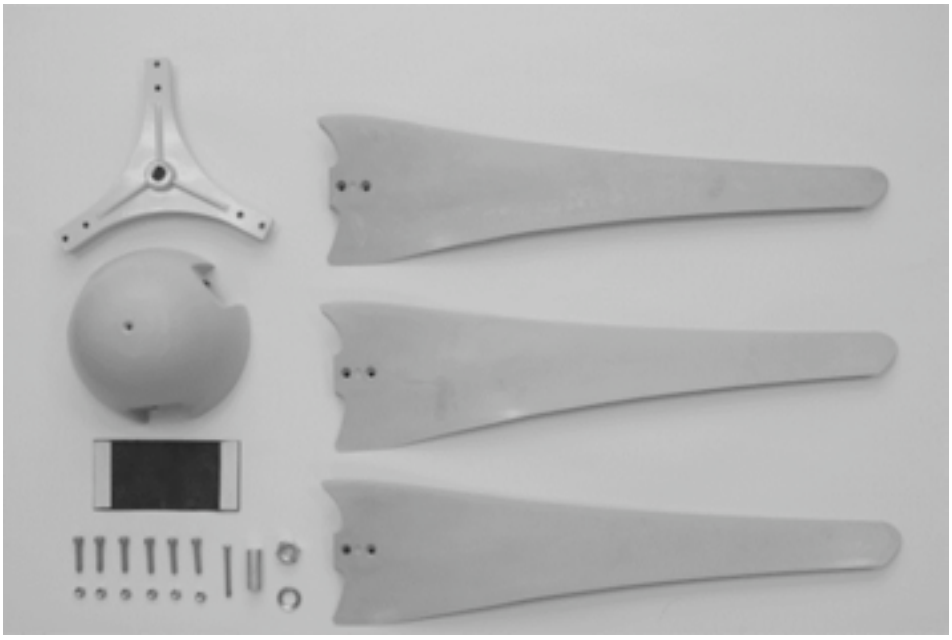


Figure 2

Step2: Take out the blades from box and fasten the blades on hub with nuts.

Figure 3

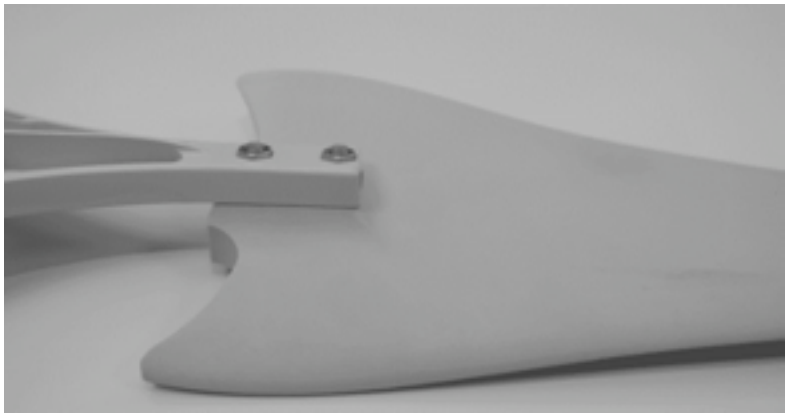


Figure 4

Caution: Make sure that all of the bolts are secured with nuts.

Step 3: How to install the hub.

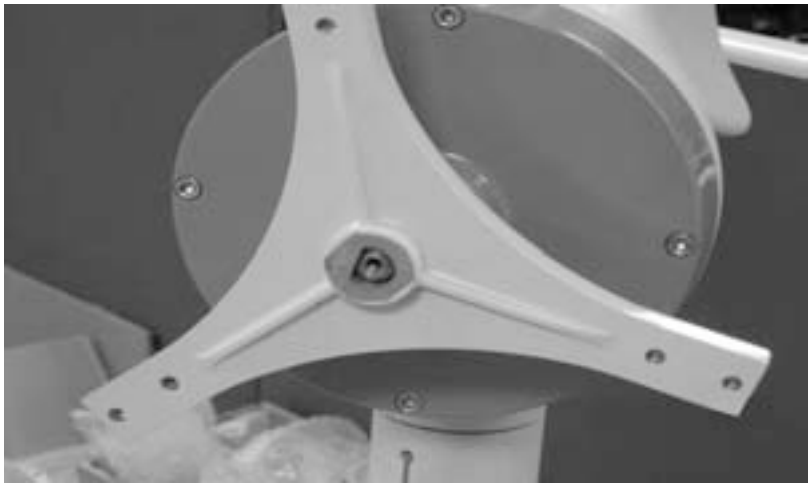


Figure 5

Adhesive strip should be wrapped around your Tower (not included) to increase secure connection to the Yaw shaft.

Step 4: Take out the wind turbine from box and put the cables through the mast.

Figure 6

Step 5: To install the wind turbine to your chosen tower (not included) securely fasten the bolt by using the hex wrench.

Figure 7

Step 6: Install the hub on the wind turbine using M14 nut and spring washer.

Figure 8

Figure 9

Caution: Make sure the nut is secured with the spring washer.

Step7: Put the sleeve inside the nose cone and fasten the nose cone to the hub. Apply pressure to the connections to ensure a secure fit.

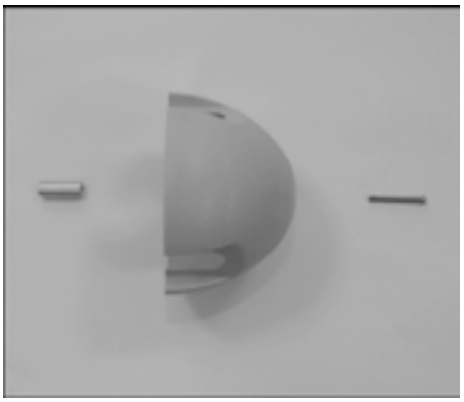


Figure 10

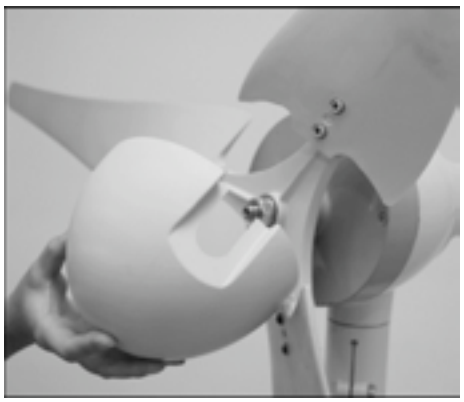


Figure 11

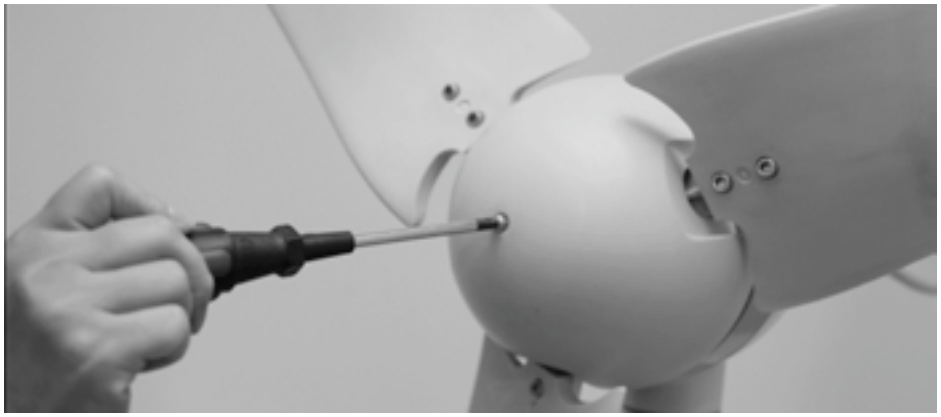


Figure 12

Step 8: Tail Fin assembly. Use the four supplied HEX screws, to firmly connect the Tail Fin to the hub.

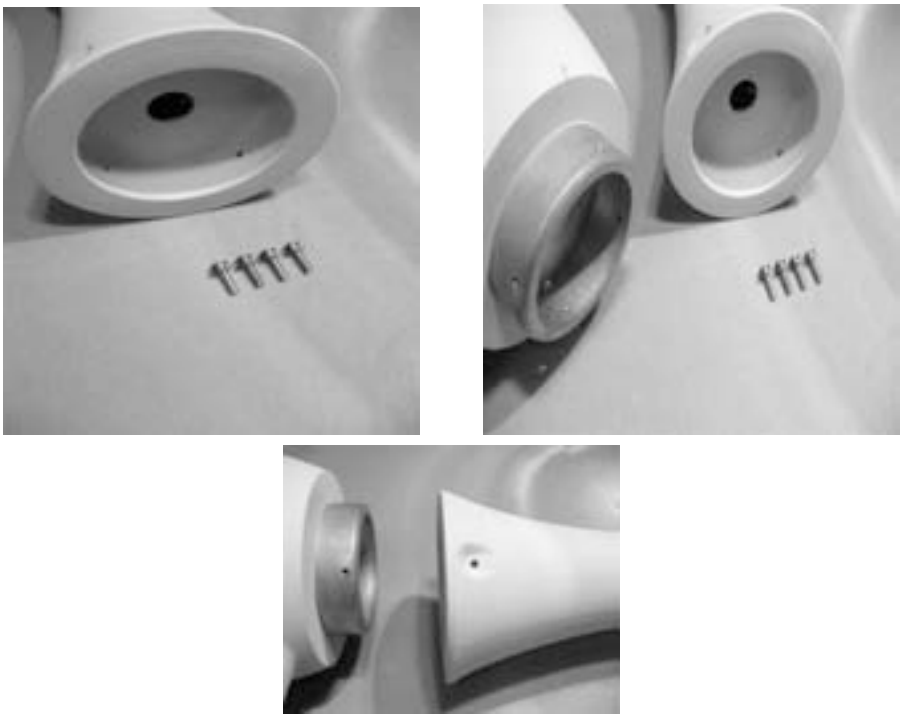


Figure 13

6. MAINTENANCE

Your Sunforce Products 600 Watt Wind Turbine has been designed to run for long periods without requiring any maintenance. Performance will be enhanced if you periodically inspect your system. Review the following simple maintenance procedures and implement every six months.

Caution: Do not go near the wind turbine during operation.
Caution: The blades are sharp. Please handle with care.

• Check blades for superficial damage. Replace blades if damaged. It is important to not use blades that are damaged, as you will lose overall balance, resulting in a decrease in efficiency. Should you notice damage to the blades you must replace all 3. The blades are balanced as sets.
• Check the blade bolts and the hub nut for tightness.
• Check nosecone for cracks and tighten nuts.
• Wipe any excess dirt build-up from the blades.
• Check all electrical connections to make sure they are tight and free from corrosion.
• Check the voltage of your battery bank with a Multi-meter and clean the terminals.
• Sunforce Products suggests replacing the blades every five years for optimal performance.

7. FAQS

(1) How does the *Sunforce Products 600 Watt Wind Turbine* control power and RPM in high winds?
Your Turbine's operation will be halted to reduce the risk of damage due to overcharge and over spin

of the rotor blades. This process of braking is handled internally through your Turbines electronics.

(2) What is the maximum wind speed the *Sunforce Products 600 Watt Wind Turbine* will survive, and do I need to take it down in a storm?
Your wind turbine is designed to operate in *most* climatic conditions. Should you expect or experience winds of 150MPH upwards, please turn off the MPPT controller which will in turn manually apply the braking system to protect from any over spin. Once the Turbine has stopped it is possible to lay down the Tower to offer further protection.

(3) How long will the bearings or other wearing parts last?
According to engineering calculations, the bearings should have a 10-year life span in 12- mph (6 m/s) average wind speed sites. Bearing life will vary from one application to another; however, you should expect at least a five-year performance in adverse conditions and 10 years in normal conditions.

(4) Can the *Sunforce Products 600 Watt Wind Turbine* be connected in reverse-polarity to the battery without causing any damage?
Reverse polarity will cause damage to both your MPPT controller and battery if not quickly remedied. Always double check any wiring to reduce the risk of reverse polarity. Your turbine is equipped with polarity protection to reduce the risk of damage, but it is still possible to degrade your wiring and cause damage to the overall system.

(5) Will it hurt my *Sunforce Products 600 Watt Wind Turbine* to short-circuit the output?
No, the *Sunforce Products 600 Watt Wind Turbine* is designed to be short-circuited as a normal shutdown procedure by a fuse. The function of the stop switch is to both disconnect the turbine from the batteries as well as short-circuit the output of the turbine.

(6) Where can I locate tubing to make a tower?
Your *Sunforce Products 600 Watt Wind Turbine* is designed to make mounting as simple and straightforward as possible. Should you not wish to purchase the custom tower kit feel free to utilize schedule 40 1.5 inch steel tubing. This should be available through your local hardware outlet.

(7) What is the difference between copper and aluminum wire?
Generally aluminum wire is less conductive, so it must be bigger for the same amp load and resistive losses as copper. *Sunforce Products 600 Watt Wind Turbine* uses copper or tinned copper for the yaw wires.

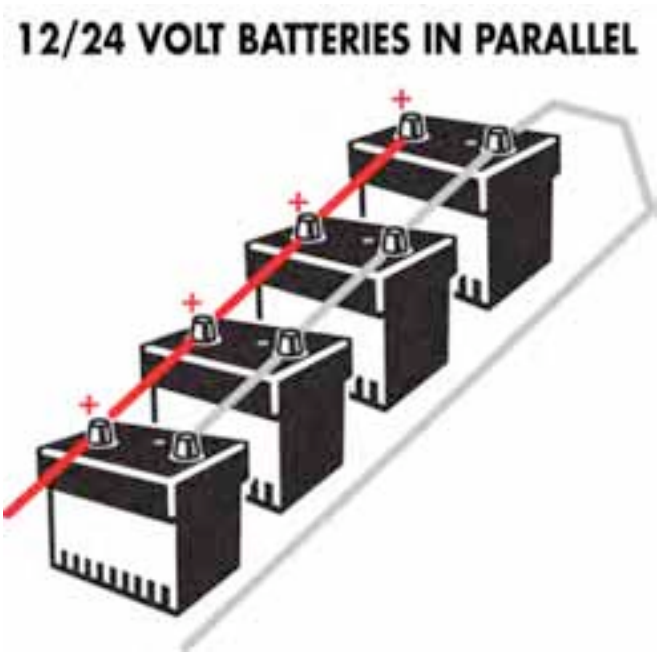
(8) What battery should I choose for my *Sunforce Products 600 Watt Wind Turbine?*
There are multiple battery options in today's market– flooded lead acid, absorbed Glass mat (AGM), gel cell and NiCad. There is no definitive choice for your alternative energy needs. Normally the

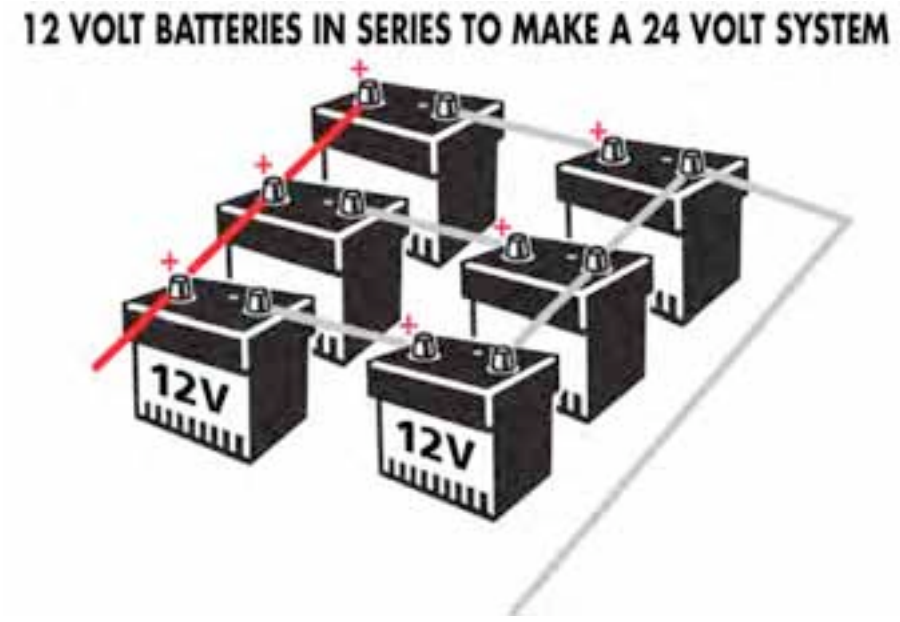
choice of battery is determined by availability and pricing. Should you have questions regarding batteries please consult a local battery supplier. Or view: www.batterycouncil.org. The capacity of your battery bank is determined by your use. Below is a good guideline.

• 12-volt systems – 400 Amp-hours
• 24-volt systems – 200 Amp-hours

(9) Is my *Sunforce Products 600 Watt Wind Turbine* protected from salt corrosion?
Yes. All components have been rigorously tested to perform under marine conditions.

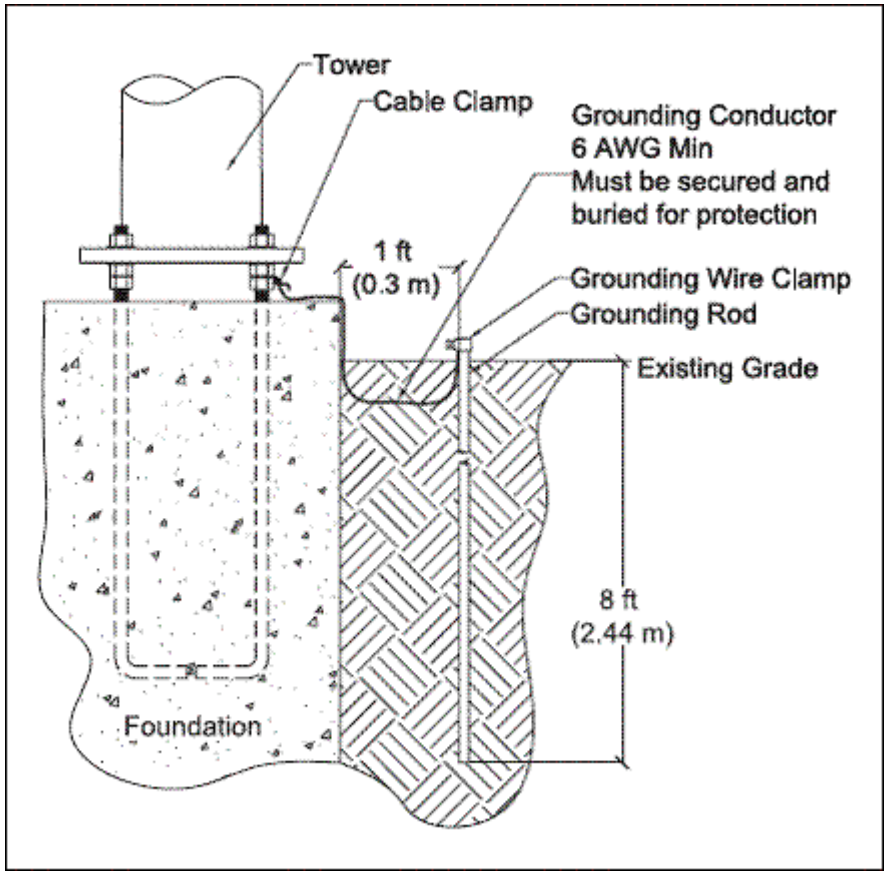
Possible Battery Configurations (suggested)





(9) Is lightning protection necessary?
You should ground your Sunforce Products 600 Watt Wind Turbine. Proper grounding (illustrated below) provides protection to individuals and equipment by eliminating the possibility of dangerous voltage. Remember a steel tower is a conduit for lightning.

Every wind turbine and turbine tower needs to be grounded at the tower base
even though the system may be grounded at the battery bank. Grounding the tower at its base may help prevent shocks to persons touching the tower due to lightning or electrical faults.
Please take the time to review the National Electrical Code (NEC) and local
building and zoning regulations for complete requirements. Even in “Off Grid Systems”
There are multiple ways for tower grounding, the most common method is a copper clad steel electrode(s) driven into the soil. Please view the following grounding diagram.



(10) What effect does radio interference have on my *Sunforce Products 600 Watt Wind Turbine*?
The internal circuitry of the *Sunforce Products 600 Watt Wind Turbine* is shielded and filtered to prevent radio interference, and has been tested to insure electro-magnetic compatibility.

(11) What effect does my *Sunforce Products 600 Watt Wind Turbine* have on radio transmissions?

The *Sunforce Products 600 Watt Wind Turbine* normally does not affect radio transmitters. Care should be taken, however, to route power lines from the *Sunforce Products 600 Watt Wind Turbine* away from the power and antenna lines of a radio transmitter. An old ham radio operator's trick is to twist positive and negative wires together to provide an even distribution of EMF noise across both wires, which serves to cancel out the electrical noise created. This technique can be used on the *Sunforce Products 600 Watt Wind Turbine* power lines, on the radio's power lines, and on transmission wires. Transmission lines should always be kept as far from power lines as is practically possible. Proper grounding of the Turbine and other system components must also be observed.

(12) Will it affect the regulation of my *Sunforce Products 600 Watt Wind Turbine* to install an RF (radio frequency) filter?
An RF filter should not affect the regulation of the Turbine, but any electronic devices placed in line with the turbine must be rated for the proper current and voltage. It is best to place any line filters on the power lines for the load device that requires it, and as close to the device as possible.

Trouble shooting

You may require an extra person to assist with these tests.

1) Remove the blade/hub from the turbine. Replace the rotor hub nut on the rotor shaft.
2) Quickly spin the rotor shaft manually with your fingers while connecting and disconnecting the red and black wires (turbine must not be connected to batteries).
3) With the red and black wires connected to each other, the shaft should be more difficult to turn. When the wires are disconnected it should spin freely.
Should this not be true please contact supplier or Sunforce Products.
4) With your 600 Watt Wind Turbine connected to your battery bank, use an electric hand drill to spin the rotor shaft.
5) Below 500 RPM, the rotor should spin freely without friction.
6) At 500 RPM and above, the Wind Turbine should be charging the battery. You should feel resistance on the rotor shaft if the shaft is not rotating; contact your turbine dealer or Sunforce Products. Be aware your battery banks needs to be under 12V or 24V for this testing as the Turbine needs to read a charge.

Warranty

Sunforce Products warrants your product to be free from defects in material and/or workmanship for a period of 5 years from original date of purchase. Warranty coverage is extended only to customer (original purchaser). If product proves defective during warranty period, Sunforce Products, at its option will:

1. Replace wind turbine with new or refurbished product.
2. Correct reported problem

Customers warranty continues to be valid on repaired or replaced product from original warranty date.

Restrictions

This warranty covers defects in manufacturing discovered while using the product as recommended by the manufacturer. The warranty does not apply to a) equipments, materials, or supplies not manufactured by Sunforce Products. b) Product that has been modified or altered other than by Sunforce Products or without prior Sunforce Products approval. c) Has been exposed to winds exceeding 157mph d) Windstorms, lightning and Hail damage e) Repairs performed by other than authorized Sunforce Products support staff. f) All acts of God; misuse, negligence or accidents. g) Tower foundation and wire h) has not been installed, operated, repaired or maintained in accordance with the instructions supplied by manufacturer. Any service identified in the above list or product is found not to have any defect in manufacturers' workmanship or materials the customer will be responsible for the costs of all repairs and expenses incurred by Sunforce Products.

Disclaimer

EXCEPT FOR THE EXPRESSED WARRANTY SET FORTH ABOVE, THE MANUFACTURER DISCLAIMS ALL OTHER EXPRESSED AND IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OR FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY AND NON-INFRINGEMENT. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, WHETHER OR NOT SIMILAR IN NATURE TO ANY OTHER WARRANTY PROVIDED HEREIN, SHALL EXIST WITH RESPECT TO THE PRODUCT SOLD UNDER THE PROVISIONS OF THESE TERMS AND CONDITIONS. THE MANUFACTURER EXPRESSLY DISCLAIMS ALL LIABILITY FOR BODILY INJURIES OR DEATH THAT MAY OCCUR, DIRECTLY OR INDIRECTLY, BY USE OF THE PRODUCT BY ANY PERSON. ALL OTHER WARRANTIES ARE EXPRESSLY WAIVED BY THE CUSTOMER.

Warranty Claims & Return Policies

To be eligible for service under this warranty, customer must either contact manufacturer either through written request or by telephone to submit a service request for the wind turbine covered by this warranty within specified period (5 years from original date of purchase) and request a return authorization (RA) number, This RA # must be issued before any product can be returned.

All notifications must include the following information:

a) Description of alleged defect
b) How the wind turbine was being used
c) Serial #
d) The original purchase date
e) Name, phone #, address of party requesting warranty

Within 2 to 3 business days Sunforce Products will provide the customer with an RA# and will direct customer to location where the product is to be returned. Once an RA has been issued the customer has 30 days to return

the product. Failure to deliver the product within the 30 days results in the RA as no longer being valid and a new RA must be issued. Manufacturer is under no obligation to accept any product that is returned to them without a proper RA #.

Limitation of Liability

UNDER NO CIRCUMSTANCES WILL THE MANUFACTURER OR ITS AFFILIATES OR SUPPLIERS BE LIABLE OR RESPONSIBLE FOR ANY LOSS OF USE, INTERRUPTION OF BUSINESS, LOST PROFITS, LOST DATA, OR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, RESULTING FROM THE DEFECT, REPAIR, REPLACEMENT, SHIPMENT OR OTHERWISE, EVEN IF THE MANUFACTURER

OR ITS AFFILIATE OR SUPPLIER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. (Note: some states and provinces do not allow the exclusion or limitation of incidental or consequential damages, so these limitations may not apply to you.) Neither the manufacturer nor its affiliates or suppliers will be held liable or responsible for any damage or loss to any items or products connected to, powered by or otherwise attached to the hardware. The total cumulative liability to Customer, from all causes of action and all theories of liability, will be limited to and will not exceed the purchase price of the Product paid by Customer. This warranty gives the Customer specific legal rights and the Customer may also have other legal rights that vary from state to state or province to province.

MPPT MARINE CHARGE CONTROLLER

User's Manual

Congratulations on your Sunforce Products purchase. This product is designed to the highest technical specifications and standards. It will supply years of maintenance free use. Please read these instructions thoroughly prior to installation, then store in a safe place for future reference. If at any time you are unclear about this product or require further assistance please do not hesitate to contact our trained professionals operating the customer support line at 1-888-478-6435 or email to info@sunforceproducts.com

Introduction:

Your Maximum Power Point Tracking (MPPT) charge controller enables the 600 watt marine turbine to achieve its highest possible performance by periodically tracking the Maximum Power Point of the turbine's output. The MPPT can be used with battery systems of either 12v or 24v DC. This user guide will demonstrate the basic operation and troubleshooting of your MPPT charge controller.

Features:

- Maximum Power Point Tracking technology.
- 12 / 24 Volt automatic detection system.
- Temperature-Compensated, Three-Stage Charge Regulation.
- Fully Waterproofed design
- Inline Fuse (40Amp)
- Manual/Automatic braking system

Power Output: 450 Watt @ 12V (Max 450W) / 500 Watt @ 24V (Max 600W)
Charge Voltage: 12V / 24V (auto detect)
Input Voltage: 5~75 Volts AC
Efficiency: >97-99%
Battery Type: 12V/24Volt

Wiring:
Caution: for safety reasons before any wiring, please ensure that the manual brake is set to the "ON" position.

The three output wires from wind turbine carry 3 phase AC current. These three wires need to be connected to the corresponding 3 wire configuration coming from the MPPT charger. Wires require clean water resistant connections.

The secondary wire coming from the MPPT charger has two purposes.

1. Connection to either a 12 Volt or 24 Volt battery system
2. Connection directly to a 12/24 Volt load

- Red, Positive (+)
- Black, Negative (-)

The included Amp meter can be wired in at this point, between MPPT and battery bank.

The load connection wire is fused (40A). Should you not be utilizing this option, simply disconnect the fuse to block any risk of current transfer

Reading your LED's

- Power on (Green). Illuminates when the turbine, MPPT, battery is connected.
- Charging/Discharging (Green). Illuminates when turbine begins charging cycle. Under 12Volts the LED will 'blink'. When Turbine is in brake mode or during prolonged periods of turbine inactivity the LED may blink to show a small Discharge from the battery.
- Protection (Red). Illuminates when either the brake is manually activated, or internal safety mechanism is activated. Under manual braking the LED may blink.

Notification:

1. Multiple function MPPT chargers will charge a battery and may also be connected to a DC to AC power inverter or a DC load. The current output passed by the terminal will also be managed by the MPPT.
2. Loose connections can cause a large voltage drop to occur which may result in damage to the wires and insulation. Always adhere to correct polarity. Double check before you activate your system. Damage caused by reverse polarity is not covered under the warranty. When connecting the positive (+) terminal to the 12 volt power source's positive (+) terminal, a spark may occur. This is a normal occurrence. Because of the possibility of this sparking, it is critical that both the turbine and the 12 / 24 volt battery be placed well away from any possible source of inflammable fumes and/or gases.
3. The charger is equipped with an auto brake function. However it is strongly suggested that the user turn on the manual brake in extreme weather conditions.
4. Check the battery health periodically. If the voltage of the battery is lower than 10Volt the charger will not work and the turbine will automatically lock.

Important Safety Measures

- For the most effective use, place the MPPT Controller on a flat surface.

- Refrain from moving the MPPT whilst in ‘Charging” state.
- All wire connections should be secure and sealed watertight.

Multi –Stage Battery Charging:
The MPPT charge controller is a sophisticated multi-stage battery charger that uses several regulation stages to allow fast recharging of the battery system while ensuring a long battery life. This process can be used with both sealed and non-sealed batteries. The MPPT will automatically set the charging regulation voltage set points (absorb & float) for the selected nominal battery voltage.

Troubleshooting Guide

MPPT does not turn on (Green LED)
1. Check battery connection and polarity.
Reverse polarity or improper connection will cause power-up issues.
2. Is the battery voltage greater than 10.5v?
A battery voltage less than 10.5v will not power up the MPPT.

MPPT not producing expected power

1. Are wind conditions optimal?

The primary consideration in a wind generator is the average wind speed at the installation site. Wind turbines in locations with constantly high wind speeds bring best return on investment.

2. Are the batteries charged? Is the MPPT in the absorbing or float stage?

If so, the MPPT will produce enough power to regulate the voltage at the absorption or float set point voltage, therefore, requiring less power in these modes.

3. Are you using the correct wire gauge?

Please consult the wire chart in your 600 Watt Marine Turbine owner’s manual.

Warranty:
This product is covered under a five year limited warranty. Sunforce Products Inc. Warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of five years from date of purchase. To obtain warranty service please contact Sunforce Products for further instructions, at 1 888 478-6435 or email info@sunforceproducts.com please note that proof of purchase including date, and expiration of compmaint is required for warranty service.

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